

REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-19 and 25-37 are pending, with Claims 1, 7, 13, 26 and 31 amended by the present Amendment.

In the Official Action, Claims 1-19 and 25-37 were rejected under 35 U.S.C. § 101; Claims 1-19 and 25-37 were rejected under 35 U.S.C. § 112, first paragraph; Claims 1-19 and 26-37 were rejected under 35 U.S.C. § 112, second paragraph; and Claims 1, 4-7, 10-13, 16-19, 25-26, 29-32 and 35-37 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Chakrabarti (U.S. Patent No. 6,356,899) in view of Maim (U.S. Patent Application No. 2005/0171946). Claims 2-3, 8-9, 14-15, 27-28 and 33-34 were not rejected in view of any prior art.

Claims 1, 7, 13, 26 and 31 are amended to overcome the rejection under 35 U.S.C. § 101 and 112. No new matter is added.

Applicants acknowledge with appreciation the personal interview between the Examiner, the Examiner's supervisor and Applicants' representative on January 11, 2007. During the interview, the Examiners acknowledged that the present amendment overcomes the rejections under 35 U.S.C. § 101 and 112, and does not raise a new issue requiring further search and/or consideration. The Examiners indicated that the following remarks distinguished the claimed invention from the applied references.

Also during the interview, the Examiners requested clarification of the recited terms "non-compound" and "mathematically decoupled". As noted in the interview, the terms are synonymous. That is, by determining hub and authority weights with non-compound operators (i.e., mathematically decoupled operators), the steps of determining are themselves mathematically decoupled. Furthermore, the claimed use of a Forward operator, without

using a Backward operator (as well as the use of a Backward operator, without using a Forward operator) is a practical explanation of non-compound. For the reasons below, none of the applied references disclose or suggest the use of a) non-compound operators. That is, none of the applied references disclose or suggest the claimed use of a Forward operator, without using a Backward operator (as well as the use of a Backward operator, without using a Forward operator). If desired, Applicants would consider an Examiner's amendment to delete the term "non-compound" and/or "...mathematically decoupled" if the Examiners believe such an amendment would more clearly describe and distinctly claim Applicants' invention.

Briefly recapitulating, amended Claim 1 is directed to a computer-implemented method of searching, navigating or retrieving one or more information objects in one or more electronic archives and including ranking the relevance of a node in a linked set of nodes. The method includes determining an authority weight for said node using a non-compound, non-normalized Forward operator and without using a Backward operator; determining a hub weight for said node using a non-compound, non-normalized Backward operator and without using a Forward operator such that said steps of determining are mathematically decoupled; and ranking said relevance based upon said authority weight and said hub weight. Applicants claimed method provides for improved searching, navigating and ranking of information objects. Claims 7 and 26 are directed to a device and system corresponding to the method of Claim 1. Claims 13 and 32 are directed to a method and system where at least one of the previously described determining steps is performed.

Chakrabarti describes a method for identifying, filtering, ranking and cataloging information elements; as for example, World Wide Web pages, of the Internet in whole, part, or in combination. The method is preferably implemented in computer software and features steps for enabling a user to interactively create an information database including preferred

information elements such as preferred World Wide Web pages in whole, part, or in combination. The method includes steps for enabling a user to interactively create a frame-based, hierarchical organizational structure for the information elements, and steps for identifying and automatically filtering and ranking by relevance, information elements, such as World Wide Web pages for populating the structure, to form; for example, a searchable, World Wide Web page database. Additionally, the method features steps for enabling a user to interactively define a frame-based, hierarchical information structure for cataloging information, identifying a preliminary population of information elements for a particular hierarchical category arranged as a frame, based upon the respective frame attributes, and thereafter, expanding the information population to include related information, and subsequently, automatically filtering and ranking the information based upon relevance, and then populating the hierarchical structure with the a definable portion of the filtered, ranked information elements.¹

However, as acknowledged by the Official Action, Chakrabarti does not disclose or suggest Applicants' claimed steps of determining that are mathematically decoupled. Indeed, Chakrabarti is an example of Applicants' Admitted Prior Art (see discussion in the specification re: Kleinberg and HITS). As with Kleinberg and HITS, Chakrabarti relies upon *coupled* operations. In column 19, lines 34-52, Chakrabarti describes that the authority scores a is related to the h vector, and that the hub scores h is related to the a vector. Because of this mutual interdependence the authority and hub scores a and h are mathematically related to each other. Because the scores are mathematically related to each other, these two scores are coupled (i.e., *not decoupled*). Thus, Chakrabarti does not disclose or suggest the processes of Claims 1, 7 and 26. Chakrabarti also does not disclose or suggest the processes

¹ Chakrabarti, abstract.

recited in Claims 13 and 32, due to the fact that the inherent mutual interdependence of the manner that the Chakrabarti process determines the authority scores a and the hub scores h .

To cure the deficiency of Chakrabarti, the Official Action cites Maim. Maim discloses a truncated method for detecting additional relevant resources in relation to a predefined initial number of resources. The method of Maim includes a step of calculating a relevance score (authority score) and then calculating a second relevant score (hub score). The authority score is calculated by identifying the set of pages of R^{+} possessing at least one link pointing to at least one subset of an early analysis.

However, contrary to the Official Action, Maim does not cure the deficiencies of Chakrabarti. Maim merely presents a truncated form of the method of Applicants' admitted prior art, including Chakrabarti. Applicants first note that the Official Action misquotes Applicants' pending independent claims. In response to the last Official Action, Applicants amended the claims to define the term mathematically decoupled. The independent claims each recite "determining an authority weight for said node using a non-compound, non-normalized Forward operator and without using a Backward operator" and "determining a hub weight for said node using a non-compound, non-normalized Backward operator and without using a Forward operator such that said steps of determining are mathematically decoupled." Thus, the invention requires not separate authority and weight calculations as suggested by the Official Action's interpretation of Maim, but specific types of authority and weight calculations. Maim does not cure the deficiencies of Chakrabarti because Maim also fails to disclose or suggest "determining an authority weight for said node using a non-compound, non-normalized Forward operator and without using a Backward operator" or "determining a hub weight for said node using a non-compound, non-normalized Backward operator and without using a Forward operator." Acting as his own lexicographer, Applicants have repeatedly defined mathematically decoupled as being the use of forward

operators without using backward operators, and using backward operators without using forward operators. Both Chakrabarti and Maim describe operations that are mathematically coupled because Chakrabarti and Maim each use both forward and backward operators when calculating various relevance metrics. In Maim, the use of backward and forward operators is shown at least in the superscripts of the expression R^{-+} , where the “-” represents a backward operation and “+” represents a forward operation.

Applicants submit that the present amendment is directed only to the rejections under 35 U.S.C. § 101 and 112 and that the present amendment places the application in better form for appeal on the merits without raising a new issue requiring further search and/or consideration. Applicants therefore request the amendment be entered.

Furthermore, in view of the present amendment and in light of the previous discussion, Applicants respectfully submit that the present application is in condition for allowance and respectfully request an early and favorable action to that effect.

Respectfully submitted,

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